

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

TRANSLATION

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

Applicant's or agent's file reference ITR04003		Date of mailing (day/month/year)
International application No. PCT/JP2005/000172	International filing date (day/month/year) 11.01.2005	Priority date (day/month/year) 08.01.2004
International Patent Classification (IPC) or both national classification and IPC		
Applicant ITO, Kohzo		

1. This opinion contains indications relating to the following items:

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Box No. I	Basis of the opinion						
Box No. II	Priority						
Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability						
Box No. IV	Lack of unity of invention						
Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement						
Box No. VI	Certain documents cited						
Box No. VII	Certain defects in the international application						
Box No. VIII	Certain observations on the international application						

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Authorized officer
Facsimile No.	Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/000172

Box No. I	Basis of this opinion
	<p>1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).</p> <p>2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p>a. type of material</p> <p><input type="checkbox"/> a sequence listing</p> <p><input type="checkbox"/> table(s) related to the sequence listing</p> <p>b. format of material</p> <p><input type="checkbox"/> in written format</p> <p><input type="checkbox"/> in computer readable form</p> <p>c. time of filing/furnishing</p> <p><input type="checkbox"/> contained in the international application as filed.</p> <p><input type="checkbox"/> filed together with the international application in computer readable form.</p> <p><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search.</p> <p>3. <input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p> <p>4. Additional comments:</p>

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/000172

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																									
<p>1. Statement</p> <table> <tr> <td>Novelty (N)</td> <td>Claims</td> <td>1-37</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td></td> <td>NO</td> </tr> <tr> <td>Inventive step (IS)</td> <td>Claims</td> <td>1-37</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td></td> <td>NO</td> </tr> <tr> <td>Industrial applicability (IA)</td> <td>Claims</td> <td>1-37</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td></td> <td>NO</td> </tr> </table>			Novelty (N)	Claims	1-37	YES		Claims		NO	Inventive step (IS)	Claims	1-37	YES		Claims		NO	Industrial applicability (IA)	Claims	1-37	YES		Claims		NO
Novelty (N)	Claims	1-37	YES																							
	Claims		NO																							
Inventive step (IS)	Claims	1-37	YES																							
	Claims		NO																							
Industrial applicability (IA)	Claims	1-37	YES																							
	Claims		NO																							
<p>2. Citations and explanations:</p> <p>Claims 1-37 appear to be novel and to involve an inventive step.</p> <p>Document 1: WO 2002/002159 A1 (Kabushiki Kaisha Japan Tissue Engineering), 10 January 2002, Claims; page 11, line 12 to page 14, line 4; Fig. 2</p> <p>Document 2: Takahiro Ichi et al., "Polyrotaxanes o Kihon Kokkaku toshita 3 Jigen Soshikitai no Chosei to sono Tokusei Kaiseki", The Japan Society of Mechanical Engineers Dai 12 Kai Bio Engineering Koenkai-Shinseiki ni Okeru Bio Engineering no Yakuwari o Kangaeru – Koen Ronbunshu, 05 January 2000, pages 217-218</p> <p>Document 3: WO 2001/083566 A1 (Center for Advanced Science and Technology Incubation (CASTI)), 08 November 2001, claims; page 19, lines 16-21</p> <p>Document 4: JP 10-306104 A (President of Japan Advanced Institute of Science and Technology, Hokuriku), 17 November 1998, claims; Par. No. 0017</p> <p>Document 5: JP 09-301893 A (Japan Science and Technology Corp.), 25 November 1997, claims; Par. No. 0012, 0015-0019, Figs. 1, 3, 4</p> <p>Documents 1 and 2 disclose a material comprising a polyrotaxane hydrogel crosslinked with a polyrotaxane, and disclose substituting the hydroxyl groups on the cyclodextrin molecules of the polyrotaxane with N, N'-carbonyldiimidazole groups, in other words substituting with non-ionic groups, before crosslinking the polyrotaxane.</p> <p>Document 3 discloses a compound having a crosslinked polyrotaxane, and that it is desirable to have thiol groups etc., in other words non-ionic groups, as reactive groups on the outside of the cyclodextrin molecules in the polyrotaxane.</p> <p>Document 4 discloses a platelet metabolism-inhibiting blood-compatible material constituted by hydrophilic linear polymers penetrating the cavities of multiple cyclic compounds and having supramolecular structures with sufficiently bulky biodegradable groups at both ends of these hydrophilic linear polymers in order to prevent the detachment of these hydrophilic linear polymers from these cyclic compounds, and also discloses that this cyclodextrin is hydroxypropylized.</p> <p>Document 5 (Par. No. 0016, Fig. 3, Fig. 4) discloses that because polyrotaxanes have a molecular state wherein cyclodextrins agglomerate at low temperatures and separate when the temperature rises, they exhibit a stimulus response whereby they are either soluble or insoluble in aqueous suspensions.</p>																										

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/000172

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 35 specifies a crosslinked polyrotaxane, but because the invention specified in claims 22-34, which are cited in claim 35, is a "material", such a disclosure lacks consistency and is unclear.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/000172

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

Documents 1-5 do not stipulate bridging two polyrotaxane molecules by a physical link.

Therefore, the inventions of claims 1-37 are identical to the inventions disclosed in documents 1-5.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

TRANSLATION

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

		Date of mailing (day/month/year)
Applicant's or agent's file reference ITR04003		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/JP2005/000172	International filing date (day/month/year) 11.01.2005	Priority date (day/month/year) 08.01.2004
International Patent Classification (IPC) or both national classification and IPC		
Applicant ITO, Kohzo		

1. This opinion contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the opinion
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Authorized officer
Facsimile No.	Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/000172

Box No. I	Basis of this opinion
<p>1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).</p> <p>2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p>a. type of material</p> <p><input type="checkbox"/> a sequence listing</p> <p><input type="checkbox"/> table(s) related to the sequence listing</p> <p>b. format of material</p> <p><input type="checkbox"/> in written format</p> <p><input type="checkbox"/> in computer readable form</p> <p>c. time of filing/furnishing</p> <p><input type="checkbox"/> contained in the international application as filed.</p> <p><input type="checkbox"/> filed together with the international application in computer readable form.</p> <p><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search.</p> <p>3. <input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p> <p>4. Additional comments:</p>	

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/000172

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																										
<p>1. Statement</p> <table> <tr> <td>Novelty (N)</td> <td>Claims</td> <td>1-37</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td></td> <td>NO</td> </tr> <tr> <td>Inventive step (IS)</td> <td>Claims</td> <td>1-37</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td></td> <td>NO</td> </tr> <tr> <td>Industrial applicability (IA)</td> <td>Claims</td> <td>1-37</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td></td> <td>NO</td> </tr> </table>				Novelty (N)	Claims	1-37	YES		Claims		NO	Inventive step (IS)	Claims	1-37	YES		Claims		NO	Industrial applicability (IA)	Claims	1-37	YES		Claims		NO
Novelty (N)	Claims	1-37	YES																								
	Claims		NO																								
Inventive step (IS)	Claims	1-37	YES																								
	Claims		NO																								
Industrial applicability (IA)	Claims	1-37	YES																								
	Claims		NO																								
<p>2. Citations and explanations:</p> <p>Claims 1-37 appear to be novel and to involve an inventive step.</p> <p>Document 1: WO 2002/002159 A1 (Kabushiki Kaisha Japan Tissue Engineering), 10 January 2002, Claims; page 11, line 12 to page 14, line 4; Fig. 2</p> <p>Document 2: Takahiro Ichi et al., "Polyrotaxanes o Kihon Kokkaku toshita 3 Jigen Soshikitai no Chosei to sono Tokusei Kaiseki", The Japan Society of Mechanical Engineers Dai 12 Kai Bio Engineering Koenkai-Shinseiki ni Okeru Bio Engineering no Yakuwari o Kangaeru – Koen Ronbunshu, 05 January 2000, pages 217-218</p> <p>Document 3: WO 2001/083566 A1 (Center for Advanced Science and Technology Incubation (CASTI)), 08 November 2001, claims; page 19, lines 16-21</p> <p>Document 4: JP 10-306104 A (President of Japan Advanced Institute of Science and Technology, Hokuriku), 17 November 1998, claims; Par. No. 0017</p> <p>Document 5: JP 09-301893 A (Japan Science and Technology Corp.), 25 November 1997, claims; Par. No. 0012, 0015-0019, Figs. 1, 3, 4</p> <p>Documents 1 and 2 disclose a material comprising a polyrotaxane hydrogel crosslinked with a polyrotaxane, and disclose substituting the hydroxyl groups on the cyclodextrin molecules of the polyrotaxane with N, N'-carbonyldiimidazole groups, in other words substituting with non-ionic groups, before crosslinking the polyrotaxane.</p> <p>Document 3 discloses a compound having a crosslinked polyrotaxane, and that it is desirable to have thiol groups etc., in other words non-ionic groups, as reactive groups on the outside of the cyclodextrin molecules in the polyrotaxane.</p> <p>Document 4 discloses a platelet metabolism-inhibiting blood-compatible material constituted by hydrophilic linear polymers penetrating the cavities of multiple cyclic compounds and having supramolecular structures with sufficiently bulky biodegradable groups at both ends of these hydrophilic linear polymers in order to prevent the detachment of these hydrophilic linear polymers from these cyclic compounds, and also discloses that this cyclodextrin is hydroxypropylized.</p> <p>Document 5 (Par. No. 0016, Fig. 3, Fig. 4) discloses that because polyrotaxanes have a molecular state wherein cyclodextrins agglomerate at low temperatures and separate when the temperature rises, they exhibit a stimulus response whereby they are either soluble or insoluble in aqueous suspensions.</p>																											

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/000172

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 35 specifies a crosslinked polyrotaxane, but because the invention specified in claims 22-34, which are cited in claim 35, is a "material", such a disclosure lacks consistency and is unclear.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/000172

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

Documents 1-5 do not stipulate bridging two polyrotaxane molecules by a physical link.

Therefore, the inventions of claims 1-37 are identical to the inventions disclosed in documents 1-5.